



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,167	08/11/2006	Philippe Gilberton	PU040009	6842
24498 7590 02/05/2008 Joseph J. Laks THOMSON LICENSING LLC 2 Independence Way, Patent Operations PO BOX 5312 PRINCETON, NJ 08543			EXAMINER TRINH, TAN H	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 02/05/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,167	GILBERTON ET AL.	
	Examiner	Art Unit	
	TAN TRINH	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 08-11-2006, the information disclosure statement has been considered by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (U.S. Patent No. 5,909,642).

Regarding claim 9, Suzuki teaches a method for controlling a transceiver apparatus (see fig. 1, radio communication device, col. 1, lines 16-21) , comprising: detecting a power level of third order intermodulation products associated with a power amplifier of the transceiver apparatus (see col. 2, lines 28-57); and controlling the power amplifier responsive to the detection (see col. 2, lines 51-57).

Regarding claim 10, Suzuki teaches the controlling step includes controlling a bias current associated with the power amplifier (see fig. 2col. 2, lines 52-57).

Regarding claim 11, Suzuki inherently teaches the bias current is reduced if an accumulator level is lower than a reference level and in that the bias current is increased if said accumulator level is higher than said reference level, said accumulator level being an estimate of power level of third order intermodulation products (see col. 10, lines 47-67).

Regarding claim 12, Suzuki teaches the bias current is modified only if a transmitting power level of the transceiver apparatus exceeds a predetermined threshold level (see col. 10, lines 52-56). In this case, the output level of the amplifier 40 increase than the bias current is increase.

Regarding claim 13, Suzuki inherently teaches the bias current is maintained at its current level only if the transmitting power level of the transceiver apparatus does not exceed the predetermined threshold level (see col. 10, lines 47-67). In this case, when the bias current is maintained the at its current level only if the transmitting power level of the transceiver apparatus does not exceed the predetermined threshold level, that is also well known in the art.

Regarding claim 14, Suzuki teaches using said power amplifier (35) to amplify a transmission signal; and using a switch (31) to provide passage of the transmission signal from the power amplifier to a signal transmitting element (see fig. 13, col. 9, lines 37-57).

Regarding claim 15, Suzuki teaches the signal transmitting element to wirelessly transmit said transmission signal (see fig. 1, radio communication device, col. 1, lines 16-21).

Regarding claim 16, Suzuki teaches a leakage signal associated with the switch includes the third order intermodulation products (see fig. 13, col. 9, lines 42-65). In this case, the IM3 is associated with the switch (31 or Q2).

Regarding claim 17, Suzuki teaches the detecting and controlling steps are performed if a transmitting power level of the transceiver apparatus exceeds a predetermined threshold level (see fig. 1, detecting 4, col. 2, lines 40-57). In this case, when the detecting the frequency component related to the third order inter-mod distortion supply by the power amplifier exceeds a predetermined threshold level than the adjusting the gate bias depend on the detecting.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haub (U.S. Pub. No. 2005/0026564) in view of Hayashihara (U.S. Patent No. 6,912,377).

Regarding claims 1, Haub teaches an apparatus (see fig. 3), comprising a receive chain (302) and a transmitting chain (100) (see fig. 3, page 3, section [0030]), which receives signal and transmits signal during separate time intervals (see fig. 3, page 3, section [0030]), wherein it further comprises: power amplifying (126) means for amplifying a transmission signal (100)

(see fig. 3); and control means for controlling amplifying means based on a power level estimation of third order intermodulation products associated with the power amplifying means (see fig. 4-5 and 7, pages 2-3, section [0017, 0020, 0024-0025 and 0028]), the intermodulation products being represented by leakage signals going through switch to signal receiving elements during the transmitting mode (see page 3-4, section [0024-0025, 0028, 0031 and 0034-0035 and 0038]). Haub teaches the control using current and/or gain control. Increasing linearity can be achieved by either lowering a gain of the gain stage and mixer of the receiver, increasing current to the gain stage and mixer of the receiver, or both, When the detecting the third order intermodulation products associated with the power amplifying (see fig. 7). But Haub does not specifically mention the controlling of the power amplifying when leak power ratio detected.

However, Hayashihara the controlling of the power amplifying when leak power ratio detected (see fig. 2, power amplifier control circuit (100) controlling the power amplifying of PA (10), col. 2, lines 9-67, col.5, lines 65-col. 6, lines 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify above teaching of Haub with Hayashihara, in order to provide mobile communication terminal for reducing power consumption by operating power amplifier with a minimum on supply power (see suggested by Hayashihara on col. 2, lines 9-13).

Regarding claim 2, Hayashihara teaches the control means controls a bias current associated with the power amplifying means (see fig. 4, bias circuit, and fig. 10, bias circuit (711)).

Regarding claim 3, Hayashihara teaches further comprising signal transmitting means for wirelessly transmitting the transmission signal (see fig. 1) .

Regarding claim 4, Haub teaches for switching (104) means for providing passage of transmission signal from the power amplifying (126) means to the signal transmitting means; and wherein a leakage signal associated with the switching means includes the third order intermodulation products (see fig. 3, and 7, the third order inter-mod products, page 4-5, sections [0037-0038 and 0040-0042]). In this case, the switching can be the transmitter on/off switch or the Duplex when switching TX and RX operating.

Regarding claim 5, Haub teaches the transceiver apparatus includes a transmitting mode and a receiving mode; and the control means comprises digital filtering means for performing digital filtering operations during both the transmitting mode and the receiving mode (see fig. 3, Digital filter block 323, and high pass digital filter and low pass digital filter on fig. 5 and page 4, sections [0035-0037]).

Regarding claim 6, Haub teaches the digital filtering means performs a high pass digital filtering operation during the transmitting mode, and performs a low pass digital filtering operation during the receiving mode (see fig. 3, Digital filter block 323, and high pass digital filter and low pass digital filter on fig. 5, page 4, sections [0035-0037]).

Regarding claim 7, Hayashihara teaches the control means controls the power amplifying means only if a transmitting power level of the transceiver apparatus exceeds a predetermined threshold level (see col. 3, lines 41-44, and col. 5, lines 65-col. 6, lines 2).

Regarding claim 18, Haub teaches the control means are set up using a single component such as a controller (see fig. 1, controller DSP 108).

Regarding claim 19, Haub teaches switching means are set up using a single component such as a switch (see fig. 1, Duplex 104, that is a single component as a switch).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haub (U.S. Pub. No. 2005/0026564) in view of Hayashihara (U.S. Patent No. 6,912,377) further in view of Suzuki (U.S. Patent No. 5,909,642).

Regarding claim 8, Hayashihara teaches the bias current (see fig. 10). But Hayashihara does not mention the bias current is maintained at its current level only the transmitting power level of the transceiver apparatus does not exceed the predetermined threshold level.

However, Suzuki inherently teaches the bias current is maintained at its current level only if the transmitting power level of the transceiver apparatus does not exceed the predetermined threshold level (see col. 10, lines 47-67). In this case, when the bias current is maintained the at its current level only if the transmitting power level of the transceiver apparatus does not exceed the predetermined threshold level, that is also well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify combination of the teaching of Haub and Hayashihara with Suzuki, in order to provide constant current level when power level does not exceed the predetermined.

Conclusion

7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(571) 273-8300, (for Technology Center 2600 only)

*Hand-delivered responses should be brought to the Customer Service Window (now located at the **Randolph Building, 401 Dulany Street, Alexandria, VA 22314**).*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan Trinh whose telephone number is (571) 272-7888. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Anderson, Matthew D., can be reached at (571) 272-4177.

The fax phone number for the organization where this application or proceeding is assigned is **(571) 273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

Application/Control Number:
10/589,167
Art Unit: 2618

Page 9

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tan H. Trinh
Division 2618
January 31, 2008

PATENT EXAMINER
TRINH, TAN

A handwritten signature in black ink, appearing to read 'Tan H. Trinh', with a long horizontal stroke extending to the right.